Algebra 2 - Quadratics Problem Set

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1. Using the discriminant, find the number of solutions and type of solutions for $2x^2 + 5 = 2x$.

2. Find the solutions of the function $2x^2 + 7x - 13$ using the quadratic formula.

3. Solve $4x^2 - 22x + 24$ by factoring.

4. Simplify the expression $\sqrt{-36}$ completely.

5. Simplify the expression $(5 - i)^2$ completely.

6. Solve the inequality $x^2 - 1 \geq 0$.

7. Solve $4x^2 + 8x = -5$ by completing the square.

8. Solve the inequality $5x^2 + 16x + 21 < 4x^2 + 26x$.

9. Solve the system

$$y = 2x^2 + 4x - 6$$
$$y = 2x + 6$$

10. The product of two consecutive integers is 6 more than 3 times their sum. Find the integers.

11. Convert the equation $y = 3x^2 - 30x + 5$ to vertex form and identify the vertex, axis of symmetry, and range of this function.

12. Find a number such that the square of one more than the number is 4 times more than 4 times the number.